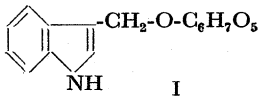
The Effect of Ascorbigen as an Antiscorbutic Compound

Some time ago it was found in this laboratory[1] that »bound ascorbic acid», ascorbigen[2], is formed from 3-hydroxymethylindole and ascorbic acid by the elimination of one molecule of water when cabbage is crushed. This indole derivative in turn is a product of the enzymic cleavage of glucobrassicin, a new type of thioglucoside in *Brassica* plants isolated and characterized chemically, over a year ago in this laboratory[1,3].

Formula I gives an idea of the structure of ascorbigen.



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Ascorbigen could also be synthesized by heating 3-hydroxymethylindole and ascorbic acid, or indole, formaldehyde and ascorbic acid in water[1].

From the nutritional point of view it was of interest and also of some practical importance to know whether or not the bound ascorbic acid has an antiscorbutic effect in animal and human organisms. Experiments with guinea pigs have shown that synthetic ascorbigen added to the diet when the growth of the animals had already been arrested by a deficiency of ascorbic acid rapidly cured the scurvy and promoted growth. In parallel experiments 15 mg of ascorbic acid per day and 26 mg of ascorbigen (= 15 mg of bound ascorbic acid) per day were found to have a similar antiscorbutic effect.

A detailed report of our work will be published in Acta Chemica Scandinavica.

This investigation is a part of a research project under U. S. Public Law No. 480, 83rd Congress.

References

1. Gmelin, R. and Virtanen, A. I. *Suomen Kemistilehti B* 34 (1961) 15; *Ann. Acad. Sci. Fennicae, A II* No. **107** (1961).
2. Procházka, Ž., Šanda, V., and Šorm, F. *Collection Czech. Chem. Commun.* **22** (1957) 654.
3. Gmelin, R., Saarivirta, M., and Virtanen, A. I. *Suomen Kemistilehti B* **33** (1960) 172.